REMARKS/ARGUMENTS

I. Status of the Claims

Claims 1-31 are pending.

II. The Present Amendment

No new matter is introduced by the present amendments.

The amendment to claims 1 and 16 is supported throughout the specification, including page 9, lines 15-20. This passage also sets forth a simple test by which the practitioner can tell if the cereal or food is contacted with water or steam for too long a time, such that the interior of the cereal or food is significantly hydrated. The amendments to claim 21 are intended to improve the wording and grammatical structure of the claim and are believed not to change its scope.

III. The Office Action

The Action dated September 30, 2005 (the "Action"), rejects the claims as obvious under 35 U.S.C. § 103(a) over a combination of newly-cited references: Troller and Christian, WATER ACTIVITY AND FOOD, Academic Press, New York (1978) (hereafter, "Troller"), Fennema, ed., FOOD CHEMISTRY, Marcel Dekker, Inc., New York (2nd ed., 1985) (hereafter, "Fennema"), and Matz, FOOD TEXTURE, Avi Publishing Co., Inc. Westport, CN (1962) (hereafter, "Matz"). Applicants amend in part and traverse.

A. Rejection of claims 1-15

While the Action applies the three new references together, a closer reading reveals that Troller and Fennema are applied against the bowl life claims, claims 1-15, while Matz and perhaps Fennema are applied against the friability claims. Fennema is applied against the nut claims, claims 21-31. For clarity, the rejection will be considered separately as it is applied to the bowl life, friability, and nut claims.

Turning first to the bowl life claims, claims 1-15, the Action states Troller:

> "teaches the concept of adding water to foods and then taking it away. Fennema teaches the same overall information. . . . one of ordinary skill, upon performing the sorption, desorption tests of Fennema and Troller would have performed the process of the claims."

Action, at page 3.

Troller and Fennema discuss a method of food science which measures the so-called "water activity" ("a_w") of foods. Water activity is, according to the Fennema reference, a measure of the intensity with which water associates with nonaqueous components of the food and is a better indicator of food perishability than is water content. Fennema, at page 46. It is defined as the ratio between the partial pressure above the sample and the vapor pressure of pure water at the same temperature. *Id.* The ratio is measured at various water contents at the same temperature to provide what are described as isotherms, during the addition ("sorption") of water or during dehydration ("desorption"). Fennema, at pages 50-55. The Action incorrectly takes this to mean that the food whose water activity is being measured is in the process being contacted with water and then dried, as recited in the claims.

As noted in Fennema, at page 46, water activity values have been included in regulations dealing with good manufacturing practices for food. According to the U.S. Food and Drug Administration's ("FDAs") Inspector's Technical Guide ("ITG") (available on the internet by entering "www." followed by "fda.gov/ora/inspect_ ref/itg/itg39.html"):

> "Two basic methods can be used to obtain the constant temperature sorption curves. In the first method, food of known moisture content is allowed to come to equilibrium with a small headspace in a tight enclosure and partial pressure of water activity is measured manometrically, or relative humidity is measured using a hyqrometer. Water activity is equal to equilibrium relative humidity divided by 100: (a w = ERH/100) where ERH is the equilibrium relative humidity (%). Relative humidity sensors of great variety are available for this purpose, including electric hygrometers, dewpoint cells, psychrometers, and others.

> A second basic method for preparing isotherms is the exposure of a small sample of food to various constant humidity atmospheres. After equilibrium is reached, the moisture content is determined gravimetrically or by other methods. A number of saturated salt solutions are available for this purpose. Saturated salt solutions have the advantage of maintaining a constant humidity as long as the amount of salt present is above saturation level. Salt slushes and solutions of glycerol or sulfuric acid are among those commonly used."

FDA ITG 39, dated April 16, 1984. (A copy of the ITG is attached for the Examiner's convenience.)

Thus, according to the FDA, the two basic methods for obtaining isotherm sorption curves involve either using food that already has a known moisture content, or adding or reducing moisture by exposing a food sample to an atmosphere with a carefully controlled humidity. Neither method involves contacting the food with water or with steam, as recited in the claims under examination. Thus, the rejection's supposition that Troller teaches the "concept" of "adding water to food and then taking it away" is not correct. Furthermore, as discussed in more detail below, the methods for obtaining isotherm curves necessitate that the food come into equilibrium with the atmosphere, which means that the moisture content of the food is constant throughout the whole structure of the food (surface to interior). In contrast, the claimed methods involve contacting food with substantially pure water or with steam for a time sufficient to hydrate the surface but not sufficient to permit the water or steam to hydrate the interior of said cereal product This difference has now been emphasized by adding a recitation in the present amendments.

There is also no evidence that the basic methods for measuring a_w set forth in the ITG could or would be modified to add liquid water to food. The FDA ITG takes pains to emphasize the care that must be taken in making a measurement of a_w. For example, it cautions its inspectors that changes of temperature of as little as 0.1°C can cause a measurable difference in the determination of a_w and that temperature must therefore be closely controlled. FDA ITG, at page 4. Given the sensitivity of the measurement (which can determine whether or not a product is subject to FDA regulation, see the ITG at page 4), it is unlikely it would ever be

conducted by simply dripping water on the food. Thus, while measurement of the sorption portion of a_w involves adding moisture to food, there is no evidence that the moisture is added by contacting a food with water or with steam, as recited in the claims under examination. And, when a desorption a_w isotherm is determined, no moisture is added to the food, by dripping or any other method. Rather, moisture is removed by contact of the food with the carefully controlled humidity atmosphere, whose equilibrium relative humidity (ERH)/100 is less than the initial a_w of the food. Accordingly, Applicants respectfully maintain that the references cited by the Action do not render obvious the invention as claimed.

The Action concedes that there is no recitation in the references of increasing bowl life, but contends that one of skill "would not have been prevented from tasting the product after the [water activity] test was performed." Action, at page 3. For the sake of good order, the Examiner is reminded that bowl life is not related to taste, but to whether a product is unappetizingly soggy. See, specification at page 4, lines 16-17. The claims as amended recite that the time the cereal product is contacted with the water or steam is short enough that the surface of the cereal product is hydrated, while the interior is not significantly hydrated.

As stated in the FDA ITG, the measurement of water activity is typically made by exposing a small food sample to a humid atmosphere. To determine the equilibrium relative humidity ("ERH") as part of the measurement of a_w, "several hours are required to reach equilibrium in the headspace above the food in [a] closed container." ITG, at pages 3-4, bridging paragraph (emphasis added). The Examiner will appreciate that exposing a ready to eat cereal flake or the like to moist air for several hours would hydrate the interior of the flake as well as the surface. ("Several hours" appears to be a minimum time for determining isotherms: in the potato chip study reported in the Quast and Karel reference, J Food Sci 46:403-409 (1972), cited by the Examiner as reference U on the Form PTO-892 accompanying the Action, the moisture sorption isotherms of potato chips were determined by equilibrating samples over saturated salt solutions for 3 weeks. See, Quast and Karel, at page 404, left column. Once again, this would be expected to hydrate the interior of the item.) Nor can the method be modified to provide the brief hydration and drying the Action relies on to hypothesize that an observer would then note an increase in bowl life, since the test would not provide the equilibrium in the headspace for an

accurate measurement. Accordingly, Applicants maintain that the water activity measurements conducted in the art do not accidentally anticipate the invention and do not render it obvious.

In short, the hypothetical situation posited by the Action as the basis for the rejection - that water would simply be dropped on a cereal product and then dried as a method for determining water activity, and someone might happen to observe that the cereal product had improved bowl life, cannot be reconciled with the methodology actually used in the art. The rejection should be reconsidered and, upon reconsideration, withdrawn.

B. Rejection of Claims 16-20.

Claims 16-20 relate to reducing the friability of a potato chip or of freeze-dried food, rather than to improving the bowl life of a cereal product, as recited in claim 1. The Action's statement that Troller and Fennema "teach the concept of adding water to foods and then taking it away" (Action, at page 3) has been quoted above. With regard to potato chips, in particular, the Action adds the following:

> "With respect to friability of potato chips, Matz teaches at page 215 that 'when moisture content of a substance is reduced to a level insufficient to allow a monomolecular layer, special properties result . . The texture is altered, resulting in a friable condition . . .' Thus one of ordinary skill in the art would expect that a rehydrated potato chip would be dried to a point that is less friable in order to obtain a product that is more acceptable to the consumer. It is appreciated that sprinkling potato chops with water is not mentioned but it is very well known in the art that the moisture content of foods is dependent upon the environment in which the food is placed."

Action, at pages 3-4, bridging paragraph.

Thus, the Action's argument is that one of skill would "rehydrate" a potato chip to make it less friable to make it more acceptable to the consumer, and then dry it. Applicant has addressed the general teachings of Troller and Fennema in the previous section, and showed that these references neither teach nor suggest contacting the foods in question with water. Thus, to

the extent the rejection of claims 16-20 rests on Troller and Fennema, it should be reconsidered and withdrawn for the reasons stated in section A, above.

What the rejection of claims 16-20 adds is the assertion that page 215 of Matz suggests rehydrating and then drying a potato chip to make it less friable. This imports into the reference a drying step it does not contain. The passage of Matz quoted by the Action states only that reducing the moisture content of a substance below a level sufficient to allow a monomolecular layer results in a friable condition. Even if this suggested adding moisture to the item, which the Applicants do not concede, it would not suggest then drying the item back to its original water content, as recited in the claims. Indeed, Matz would lead the person of skill to assume that drying the item back to its original moisture would undesirably increase the friability of the item, since it would presumably dry the item back below the level of moisture necessary to allow a monomolecular layer. Thus, Applicants respectfully maintain that Matz, far from rendering the present invention obvious, teaches away from it.

While the discussion above is sufficient to rebut the rejection over Matz, alone or in combination with Troller and Fennema, Applicants also observe that Matz's statement was made in 1962. The person of skill at the time the application under examination was filed in 2001 would also be aware of almost 40 years of additional teachings, such as the Quast and Karel reference, J Food Sci 46:403-409 (1972), cited by the Examiner on the Notice of References Cited as reference U. This reference, published ten years after Matz, states:

> "Crispness is a salient textural characteristic for most fresh dry cereal and starch-based snack food products, and its loss due to the adsorption of moisture is a major cause of snack food product rejection by consumers. [citation omitted]. Water affects the texture of dry snack foods by plasticizing and softening the starch/protein matrix which alters the mechanical strength of the product. . . . Kaghan (1969) stated that the potato chip industry considers chips with more than 3% moisture as unsalable, . . ."

Quast and Karel, at page 403, left column, first and last paragraphs. Since this reference, published 10 years after Matz, states that the loss of crispness due to adsorption of moisture is a major cause of snack food rejection by consumers, "sprinkling potato chips with water" or

placing potato chips in "very humid conditions", as suggested by the Action at page 4, would be expected to make them unsalable. Thus, even if Matz by itself might have motivated someone to "sprinkle water" on a potato chip, once Quast and Karel was published, they would have been dissuaded from doing so. Once again, the art teaches away from the method of the invention, and therefore does not render the claimed methods either anticipated or obvious.

C. Rejection of Claim 21

The Action rejects claims 21-31 over the Fennema reference. The Action states that "Fennema teaches at page 58 that very low water activity promotes lipid oxidation. Thus, . . . one of ordinary skill in the art would expect that the shelf life of a shelled nut [would] be extended because of the protection that water provides to the dried product." Action, at page 4. Applicants traverse.

Even assuming the Action were correct in assuming that Fennema would motivate a practitioner to add water to a shelled nut "because of the protection that water provides to the dried product", this would not explain why the practitioner would then be motivated to promptly remove that protection by drying the nut back to its original water content, as recited by claim 21. Anyone expecting that a water layer would add protection would manifestly then want to maintain that protection by keeping the nut hydrated. The Action's argument therefore would have merit, if at all, only if claim 21 did not contain a drying step, which it does.

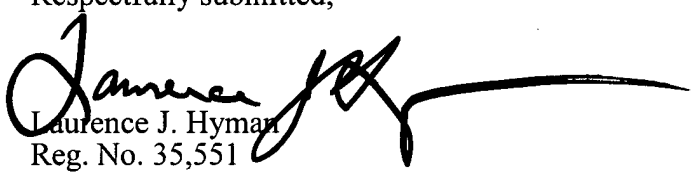
Accordingly, Fennema does not teach or suggest the method of the invention as claimed. The rejection of the claims over the reference, alone or in combination with Troller and Matz, should be reconsidered and, upon reconsideration, withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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Attachments: FDA ITG
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